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## WHAT IS CLAIMED IS:

- 1. An anodic zinc electrode for use in an alkaline based electrochemical cell, comprising:
  - a current collector; and
- an active material composition applied to the current collector, wherein the active material composition includes Zn and ZnO, and wherein the weight ratio of the Zn to ZnO ranges from approximately 1-2 to approximately 1 which enables the anodic zinc electrode to be associated with an electrochemical cell assembled in a charged or discharged state.
- 2. The anodic zinc electrode according to claim 1, further comprising a zincate solubility modifier selected from the group consisting of Be(OH)<sub>2</sub>, Mg(OH)<sub>2</sub>, Ca(OH)<sub>2</sub>, Sr(OH)<sub>2</sub>, Ba(OH)<sub>2</sub>, Ra(OH)<sub>2</sub>, and mixtures thereof.
- 3. The anodic zinc electrode according to claim 1, further comprising a hydrogen gas suppressant selected from the group consisting of PbO, CdO, Bi<sub>2</sub>O<sub>3</sub>, In<sub>2</sub>O<sub>3</sub>, and mixtures thereof.
- 4. The anodic zinc electrode according to claim 1, further comprising a binding agent selected from the group consisting of CMC, PTFE, PVA, and mixtures thereof.
- 5. The anodic zinc electrode according to claim 1, wherein the weight ratio of the Zn to ZnO ranges from approximately 1.5-2:1.

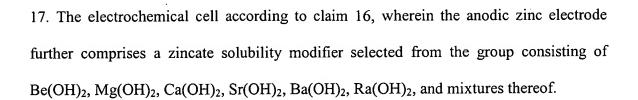


- 6. The anodic zinc electrode according to claim 5, further comprising a zincate solubility modifier selected from the group consisting of Be(OH)<sub>2</sub>, Mg(OH)<sub>2</sub>, Ca(OH)<sub>2</sub>, Sr(OH)<sub>2</sub>, Ba(OH)<sub>2</sub>, Ra(OH)<sub>2</sub>, and mixtures thereof.
- 7. The anodic zinc electrode according to claim 5, further comprising a hydrogen gas suppressant selected from the group consisting of PbO, CdO, Bi<sub>2</sub>O<sub>3</sub>, In<sub>2</sub>O<sub>3</sub>, and mixtures thereof.
- 8. The anodic zinc electrode according to claim 5, further comprising a binding agent selected from the group consisting of CMC, PTFE, PVA, and mixtures thereof.
- 9. An electrochemical cell, comprising:
  - a cathodic electrode;
  - a separator/absorber;
  - an alkaline electrolyte; and
  - an anodic zinc electrode comprising:
    - a current collector; and
    - an active material composition applied to the current collector, wherein the active material composition includes Zn and ZnO, and wherein the weight ratio of the Zn to ZnO ranges from approximately 1-2 to approximately 1 which enables the anodic zinc electrode to be associated with an electrochemical cell assembled in a charged or discharged state.





- 10. The electrochemical cell according to claim 9, wherein the anodic zinc electrode further comprises a zincate solubility modifier selected from the group consisting of Be(OH)<sub>2</sub>, Mg(OH)<sub>2</sub>, Ca(OH)<sub>2</sub>, Sr(OH)<sub>2</sub>, Ba(OH)<sub>2</sub>, Ra(OH)<sub>2</sub>, and mixtures thereof.
- 11. The electrochemical cell according to claim 9, wherein the anodic zinc electrode further comprises a hydrogen gas suppressant selected from the group consisting of PbO, CdO, Bi<sub>2</sub>O<sub>3</sub>, In<sub>2</sub>O<sub>3</sub>, and mixtures thereof.
  - 12. The electrochemical cell according to claim 9, wherein the anodic zinc electrode further comprises a binding agent selected from the group consisting of CMC, PTFE, PVA, and mixtures thereof.
  - 13. The electrochemical cell according to claim 9, wherein the cathodic electrode comprises manganese dioxide.
  - 14. The electrochemical cell according to claim 9, wherein the cathodic electrode comprises nickel-hydroxide and/or nickel-oxide.
  - 15. The electrochemical cell according to claim 9, wherein the cathodic electrode comprises silver and/or silver-oxide.
  - 16. The electrochemical cell according to claim 9, wherein the weight ratio of the Zn to ZnO ranges from approximately 1.5-2:1.



- 18. The electrochemical cell according to claim 16, wherein the anodic zinc electrode further comprises a hydrogen gas suppressant selected from the group consisting of PbO, CdO, Bi<sub>2</sub>O<sub>3</sub>, In<sub>2</sub>O<sub>3</sub>, and mixtures thereof.
- 19. The electrochemical cell according to claim 16, wherein the anodic zinc electrode further comprises a binding agent selected from the group consisting of CMC, PTFE, PVA, and mixtures thereof.
- 20. The electrochemical cell according to claim 16, wherein the cathodic electrode comprises manganese dioxide.
- 21. The electrochemical cell according to claim 16, wherein the cathodic electrode comprises nickel-hydroxide and/or nickel-oxide.
- 22. The electrochemical cell according to claim 16, wherein the cathodic electrode comprises silver and/or silver-oxide.

- 24. A method for manufacturing an anodic zinc electrode for use in an alkaline based electrochemical cell, comprising the steps of:
  - providing a current collector;
- providing an active material composition, wherein the active material composition includes Zn and ZnO, and wherein the weight ratio of the Zn to ZnO ranges from approximately 1-2 to approximately 1 which enables the anodic zinc electrode to be associated with an electrochemical cell assembled in a charged or discharged state; and
  - associating the active material composition with the current collector.
- 25. A method for manufacturing an anodic zinc electrode for use in an alkaline based electrochemical cell, comprising the steps of:
  - providing a current collector;
- providing an active material composition, wherein the active material composition includes Zn and ZnO, and wherein the weight ratio of the Zn to ZnO ranges from approximately 1.5-2 to approximately 1 which enables the anodic zinc electrode to be associated with an electrochemical cell assembled in a charged or discharged state; and
  - associating the active material composition with the current collector.